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AN UNTECHNICAL VIEW OF WARFARE.

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Of all abstruse subjects, warfare is to the lay mind probably the most bewildering. Military writers have a habit of using technical terms, and referring to maxims or rules that are not actually stated but are rather supposed to be understood, to the ultimate confusion of all except those who have made a concise study of military methods. If this is true of military writers, it holds to an even greater extent in the case of the average narrator of naval operations; for, while every civilian has some knowledge of troops, if only of the militia, there are few who know much about the sea. And if we leave out the professional writers, who may be assumed to understand the principles of their subject, and take up historians, who regard wars as incidents of greater or less importance in the march of events, the haze grows more intense. Their accounts of operations are often narratives strung together without a clear perception of the grand essential plans that brought about the results. They dwell often on the clash of battle and deeds of individual prowess, from which the reader carries no lasting impression of why anything happened as it did.

The reason for all this is, perhaps, not far to seek. There is a great deal of the technical in the *art* of the soldier or the sailor. It requires their life study and practice. How, then, may the civilian ever know very much about so complicated a subject? The *art,* it is certain, he will never master; the *science* he may—possibly, if he is a student, even better than the busy man of action himself; for art is the aptitude of experience, science is the knowledge of principles. The admiral and the general have the art to handle their forces; the scientific critic, who could not command a regiment or a ship, can say whether the admiral and the general have acted wisely. Some of this knowledge of the technical critic is possible to everybody, and to the intelligent citizen a little of it is necessary.

To illustrate this point, reference may be made to the writings of the late Mr. John C. Ropes of Boston. Here was a successful lawyer, who took up the study of military matters as a recreation. Actual personal knowledge of the handling of troops he had none, yet his criticisms of certain of the campaigns and battles of the Civil War, and his "Waterloo," are unique as examples of clear perception and comprehensive grasp of military principles. Again, the historian of a certain period of our American history was asked as to his method of preparing the accounts of the various campaigns and battles, which were remarkably well done. He replied that he had no method, except to study the reports and other authorities. Asked if he had not made some study of military science, he replied that he had not, that he had found the treatises too dry and technical. He admitted, however, that he had read one book through, the late General Hamley's "Operations of War Explained and Illustrated." Though there have been many changes in tactics since this book was published, about 1866, it remains a classic, and is one of the clearest and most interesting treatises on its subject ever written.

With regard to naval writings, the case is somewhat different. Most of the successful naval critics and historians that this country has produced have had the benefit of an early naval training, as, for instance, Cooper and Captain Mahan. There are, however, exceptions, as witness Mr. Roosevelt's "Naval War of 1812"; and abroad, especially in England, there are many civilians who possess a deep knowledge of nautical affairs. It may not be generally known that one of the most fascinating and convincing works on naval tactics ever written was produced by a civilian, John Clerk of Eldin, a Scotchman, who whittled out models of ships and carried them about in his pockets, fetching them out to while away otherwise idle moments in imaginary battle manœuvres. He it was who first persistently advocated cutting the enemy's line, a feat first successfully performed by Rodney, at the battle of The Saintes. It was even said that Rodney had in his possession at the time a manuscript copy of Clerk's work, not yet published; but there is no proof that the critical movement of this battle was inspired by Clerk's writings.

Of course, not one civilian in a million has the time or inclination to penetrate the principles of military or naval science as did Mr. Ropes, or John Clerk of Eldin. But there is no secret about such matters, and in all warfare, at all times, by land or sea, the eternal principles are the same. The supreme necessity is to be superior to the enemy at the point of contact, whether in numbers, weapons, or position; and the purpose of the science of war is to effect this superiority. All results in war are produced by the application of force; and force, so far as we know it practically, is matter in motion. The power to resist force is evidently of importance also. Here are all the absolutely inherent elements of tactics. Tactics, be it understood, governs the conduct of battles, as distinguished from strategy, which concerns the whole theatre of war, of which more later.

Now, to consider more fully these inherent elements of tactics—that is, the elements that are dependent on the forces themselves, the internal elements, in contradistinction to the external or extraneous elements, which are the elements depending on the surroundings. The internal elements seem to reduce themselves to *weapons, mass, motion,* and *resistance.* Weapons are but means of utilizing force. They are of many kinds and have differed much in past ages. The peculiar weapon of the age and of the individual armed force is the predominating influence on the tactics of that age and of that particular armed force. All missile weapons are the simplest exemplars of matter in motion, but the ram of a battle-ship depends for its effect on the same factors—namely, mass and motion. The product of the mass, or weight, of the ship, and her speed, or motion, measure the momentum, which, of course, determines the injury to be done to the enemy. Similarly with the charge of a cavalry regiment. Each horse and his rider is a projectile, and the shock depends on the momentum, or the product of mass and motion.

In land tactics, mass also refers to the numbers and grouping of the individuals in the tactical units. Other things being equal, numbers will prevail; but, with the same numbers, the massing or grouping of the individuals in the tactical unit, whether phalanx, legion or battalion, is a considerable factor in the final outcome. Similarly, motion includes mobility, or ease of assuming tactical dispositions. With infantry it lies in the soldiers' legs. On the sea, in the sail period, it depended on the wind. Now it resides in the boilers and engines, and is self-contained, causing modern steam tactics to resemble in a remarkable degree the tactics of the galley period.

Resistance, the last of the internal elements of tactics, is closely allied to protection. It is passive resistance that is meant, not active. Its reverse is vulnerability. Soldiers do not now carry body armor, and they are entirely vulnerable to all the weapons of the day. In past ages they were cased in armor, impervious to the usual missile weapons; and mailed horsemen easily rode over opposing infantry, until they met their Waterloo at the hands of the English long-bowmen at Crécy and the Swiss spearmen at Granson and Morat. The advent of firearms finished the work thus begun by the English and the Swiss, and body armor was relegated to the past. Not so in naval warfare. The walls of oak were with difficulty penetrable by the round shot of the day. Ships and fleets hammered each other interminably, until they grappled and boarded, or until a preponderating force was brought to bear against a small fraction of the enemy. Ships were rarely sunk. With the subsequent increase in power of ordnance, wooden armor-clads appeared, then iron and steel ships, and steel armor-clads. Armor is still a little ahead of the gun, but it is entirely possible that at some future time it will have totally disappeared from ships, as it did a long time since from the bodies of men. Without any protection, the quality of resistance in fighting units will vary, that is, their physical resistance to deformation. Moral and personal qualities are not here considered. The resistance of a cruiser is greater than that of a torpedo-boat, though neither may be protected. Hence, resistance means more than protection.

The above are apparently all the internal elements of tactics, that is, *weapons, mass, motion, resistance.* The external elements depend on the surroundings. They are the natural and artificial features of the field of battle, the weather, and the light. A level plain, a hill country, forests, swamps, rivers, roads, a smooth sea, fog, mist, rain, sunlight, a gale, heat, cold, all affect tactics; but the conditions on the average are what govern the normal tactics; and the average condition is fairly constant in any age. Variations will affect the tactics of a special campaign, but they will not influence the normal tactics of the age.

On the other hand, a variation in any internal element changes the whole tactics of the period. Witness the advent of smokeless powder and the small-calibre, high-power rifle. The change produced in the normal tactics is nothing less than sweeping. So, in all ages, the internal elements are the main factors in the tactics of the time, and of these the influence that predominates over all others is the weapons. And the internal elements afford a ready means of comparing the tactics of different ages.

As an illustration, let the sea tactics of the different ages be considered in the light of the internal elements. There have been three principal periods of naval warfare, the period of oars, the period of sails, and the period of steam. Taking them in order, and considering each period in reference to weapons, mass, motion and resistance, we come first to the weapons of the period of oars. The boats, or galleys, carried fighting men as well as oarsmen. These were armed with missile weapons of various sorts, as well as the usual sword and shield. In the bows of the boats were often found war engines, such as the *ballista,* or catapult. The boat was also provided with a beak, or ram. Next, as to mass. The individual units, or boats, had to be sufficiently large to carry a number of fighting men, but they were limited in size by the method of construction and the material, wood for the greater part, as well as by the necessities of oar propulsion. The motion was comparatively rapid at top speed, for by long training the oarsmen were enabled to exert a tremendous power for hours at a stretch. The resistance of the battle unit, composed of the boat and her crew, depended mostly on the life of the boat; for the fighting men did not differ materially from foot soldiers on shore, protected by helmet and shield. The boat had an excess of longitudinal strength, but was weak transversely.

From these considerations it would seem that the tactics would be to fight bows on, and to take the enemy in flank. This would permit the development of the full offensive power of the catapult and ram, would retire its own weak flank, and seek eventually to pierce the enemy's flank. As the motive power was self-contained, swift and skilful combinations could be made to bring about a bow to flank attack, and the enemy's motive power could be deranged by sweeping along his side, with suddenly boated oars, and so chopping off the blades of the opposing oars. Once in contact, provided neither boat sank, a hand-to-hand battle would ensue, and the best crew would win. But the result would usually be brought about by ramming, following a surprise attack or skilful manœuvring. These tactics are derived from a simple consideration of the elements as they were at the time.

The rest of this illustration must be very brief. In the sail period the weapon was the gun, and it came to be mounted principally in broadside, because there was no other place available. The mass was greater than in the galley period, because there was no limit imposed by a requirement of handling oars. The motion was variable, according to the strength of the wind, and was restricted in direction. With the wind from the north, ships could sail east or west, or any intermediate course by way of south, but could not lay a course any appreciable amount to the northward of east or west. The resistance of the hulls was considerable in relation to the smooth-bore ordnance of the day, and it required heavy punishment at close quarters to produce decisive results. The hulls were not usually materially damaged by running aboard of each other, being strong in relation to the habitual speed.

Hence we should expect to see the ships of a fleet strung out in a line, one ahead of the other—column, as it is called—in order to give all the guns a chance. In a fleet engagement, the enemy would have to be in a similar line, heading in the same or the opposite direction. In either case one fleet would be to windward, the other to leeward. The windward fleet would have certain advantages of position, for it could give or refuse battle on its own terms. We should then expect to see the fleets manœuvre for this windward position, that is, the weather-gage. Ramming would not be of much avail, for though the mass was sufficient, the motion was too uncertain, and the damage, in view of the relatively strong hulls, would be slight. Actual sea-fights have justified these deductions. Fleets passed in opposite directions, or stood on together in parallel lines, each vessel hammering its opposite. The French often took the lee-gage, and fired at the masts and rigging of the enemy to cripple his motive power. The English always manœuvred for the weather-gage, and always fired at the enemy's hulls. Battles were often indecisive, as the fire was distributed along the line and the hulls were relatively strong. Rodney in the West Indies was the first to show that the line might be cut, and a concentration effected on a part of the enemy's force. Nelson's great victories made use of the same principle.

Warfare in the steam period is much more complicated. This is due to the excessive differentiation of the fighting units, as from battle-ships to torpedo-boats, and also to the intricate construction of each unit. The principal weapon is still the gun, but of much greater power, range and accuracy. It is no longer carried principally in broadside, but is so distributed as to give a great volume of fire in every direction. The torpedo and the ram are the other weapons. The mass is anything, from that of the small torpedo-boat to that of the large battle-ship. It must therefore be separately considered for each separate action. The motion is now self-contained, as it was in the galley period; but it has advanced in a degree commensurate with the power of the weapons. The resistance of the units is nothing in torpedo-boats, and well-nigh perfect in battle-ships.

We should expect, then, to see fleets manœuvring for position as they did in the days of oars. The tactics would, in fact, greatly resemble those of the galley period, owing to freedom of motion in all directions. The galleys had fought in line abreast of each other, to keep their beaks to the front. It has been seen that, in the sail period, the ships were in line ahead—that is, column—to give their broadside guns a chance. The first steamers were wooden frigates with full sail power, and the battery arrangements remained the same as they had been. But with the freedom of motion, the ram had a period of development, and head-on fire came to the front. This resulted in the old galley formation of line abreast and tactics entirely similar to galley tactics. Now, with all-round fire, and the vastly greater range of the guns, the ram is discredited as a weapon of first instance; and the column, or line ahead, has reappeared as the principal fighting formation. Its advantage is that it permits follow-your-leader tactics, the simplest in actual battle. Line abreast, however, may be instantly assumed from line ahead by causing the ships to turn together through an angle of ninety degrees.

The battle now will be settled largely by gun-fire and skilful manœuvring to bring a preponderance of fire on a portion of the enemy. Ramming is largely a matter of chance, in which a skilful combatant places himself on an equality with a less able adversary. It would be resorted to at times in emergencies, or against a partially disabled ship of the enemy. The torpedo also serves to keep the combatants farther apart in the earlier stages of the action. The range and accuracy of this weapon are still on the increase; and it is part of the equipment of most battle-ships.

A contest between a battle-ship and a torpedo-boat could be most clearly outlined by a simple consideration of the elements already mentioned. As regards this contest, the weapons of the ship are her rapid-fire guns, of the torpedo-boat her torpedoes. The mass of the ship is huge. If she touched the hull of the boat she would crush it. But her size makes her conspicuous, and affords a large target area for the torpedoes. The mass of the boat is slight and thus makes for invisibility, especially at night or in a fog. In relation to motion, or speed, the boat is greatly in excess. As to resistance, while the ship is completely encased at and above the water-line, she is defenceless below, except in the protection afforded by her cellular subdivision. The boat, likewise, is entirely vulnerable to the rapid-firers of the ship. The tactics are obvious. The boat must steal up to striking distance, say a quarter to a third of a mile, unobserved. If she is discovered outside of that distance she will be riddled. Night is obviously her best time. Her high speed is useful in covering the ground from distant points, and in avoiding destroyers, also in rushing into torpedo range after discovery; but for the actual stealthy approach it is of no utility, as the rush of water and the tongues of flame from the funnels would betray her presence.

Space permitting, the changes in land tactics could be traced from the earliest times, and could be shown to merge in each other with gradual changes in the internal elements, weapons, mass, motion, resistance. So is it possible to compare the tactics of land and sea forces. Battle-ships are infantry and artillery combined, cruisers are the scouts and cavalry of the sea. A most interesting similarity exists between the tactics of modern cavalry and that of ancient galleys. The internal elements in each case happen to bear the same mutual relation to each other. Hence, the resulting tactics are the same. With cavalry the principal weapon is the horse; that is, true cavalry tactics depends on shock. With the galleys it was the beak. Cavalry taken in flank is weak, so with the galleys; both are handy and manageable and both can be given considerable speed and impetus. Hence, the tactics will be to attack at speed, by surprise if possible, and in the flank. This must not be considered merely an ingenious comparison, of no practical utility. It simply shows how the same results must follow when the elements stand in the same mutual relation to each other.

So much for tactics. The other principal subdivision of warfare is strategy. Strategy controls the whole plan of campaign, tactics regulates the conduct of battles. There are other divisions, such as logistics and engineering. Logistics is the science of moving armies and of keeping them supplied with food and munitions of war. It touches both tactics and strategy. It need not be discussed separately. Similarly, engineering is a technical art, and its results as affecting strategy and tactics are all that need be grasped by the critic.

Strategy is not always discussed as a broad science depending on foundation principles. Military and naval men go about it in an entirely different way. In the army it is a question of bases, lines of communication, lines of operation, objectives. As any particular country is fixed in its main features, these various matters may be discussed and prearranged. In the navy, the bases are fixed; the objective, usually the enemy's ships, is by no means fixed. Nor is the path fixed. There are no roads on the ocean.

But cannot strategy afloat and ashore be brought together under certain controlling principles? Are there not essential elements of strategy as there are of tactics? First, the inherent elements, depending on the forces themselves. Strategy covers the whole theatre of war. The forces must be able to cover it also. The inherent elements, then, are their means of getting over the ground, which may be termed *locomotion;* and their self-sustaining capacity, which may be termed *endurance.* Endurance has a partly technical meaning separate from physical endurance. It means the capacity of the forces for maintaining themselves by supplies furnished, carried or captured. The coal endurance of a ship, as ordinarily understood, is her steaming radius without recoaling. If fresh supplies may be obtained from colliers or coaling-stations, the coal endurance of a fleet may be unlimited. These elements of locomotion and endurance may be applied to either land or sea forces. The army marches, or goes ahorseback, or by rail, or by transports. The navy steams at high or low speed. Supplies and munitions of war can be carried in only limited quantities, either afloat or ashore. Their presence with the forces is a very living element of strategy.

The external elements of strategy are similar to those of tactics;

that is, they are the natural and artificial features of the whole theatre of war. Roads, railroads, telegraphs, population, vegetation, cities, coast lines, harbors, coaling-stations, repair-shops, the weather, heat, cold, storms, are all external elements of strategy.

In land strategy, the external elements—that is, the features of the country—seem to be the main ones to be considered; whereas in sea strategy it is the internal elements of locomotion and endurance that play the conspicuous part. Everything depends on the sustained mobility of the fleet, largely a combination of speed and coal endurance. Thus is explained the difference in treatment of strategy ashore and afloat, though its essential elements do not differ in principle. It often happens that a comparison of the conditions of the two forms of warfare throws a mutual light on both. For instance, on shore, protection of the lines of communication is everything. These lines are fixed for the time being, and continuous streams of supplies are always passing to the front. In sea warfare the lines of communication are rarely fixed. The units depend largely on distant bases and coaling-stations; and such supplies as may be sent directly from home may never follow any established route.

The elements of tactics and strategy may sometimes be invoked to clarify thought in regard to disputed matters of policy. For instance, some years ago a French school advocated numerous small gunboats and torpedo-boats in place of a few ironclads; and, even in this country, at this day, there are people who believe it would be a good plan to stop building battle-ships and turn our whole attention to submarines. Considering the matter first in the light of the elements of tactics, there does not seem to be any self-evident conclusion in sight. If the one battle-ship and the many gunboats or submarines are actually on the field of battle within reach of each other, it may go hard with the battle-ship. But first to get them there. That concerns strategy. The elements are locomotion and endurance. Granted that the small vessels have sufficient locomotion and can make sea voyages, is it not endurance, or the power of continuous self-sustainment, in which they are totally lacking? The battle-ship carries the nation's power to any part of the world, and is independent of supplies for long periods. The gunboats and submarines are helpless without a moving base, and unless the moving base is a battle-ship, she too is helpless. This consideration seems to indicate that the battle-ship is an essential unit of the fleet, even granted that the smaller craft are thoroughly efficient in their own peculiar sphere.

This habit of looking to the state of the elements as the mould in which tactics and strategy are cast thus helps considerably in arriving at an orderly analysis of the material and immaterial circumstances of war, and the preparation for war. Moreover, there have been no contests of equally matched civilized nations afloat or ashore for more than a generation. The elements of tactics and strategy have changed greatly in that time. Hence, an orderly analysis of the elements of tactics and strategy, with a special view to these changes, would seem to present the best chance of determining how the great battles are to be won.

Tactics and strategy having been shown to depend mainly on the internal and external elements already discussed, it may be asked if everything is not liable to be entirely upset by the mere personal qualities of the forces and their leaders. To this the only answer is, Yes. Yet personal qualities do not affect the form of the tactics and strategy of the age. They do affect the results of campaigns and battles. Tactics and strategy take for granted certain normal personal qualities on the part of the combatants, in much the same way that they take for granted a certain mean state of the external elements in any age. The tactics of civilized troops against savages may vary greatly according to circumstances, but the normal tactics of the age is not thereby affected. Personal qualities are moral, physical and intellectual, and in actual results they count for perhaps more than all else. The spirit, or *esprit,* of the same force at different times is also one of the most important of the controlling forces. The development of this *esprit,* even in defeat, is a psychological study worthy of very patient attention on the part of the leaders. As personal qualities have not changed materially since the earliest times, the knowledge of character, to be gained by the study of warfare in all ages, would alone pay for the outlay of time and labor necessary to that end. But, as has been seen, there are other valuable lessons as well.

Writers sometimes speak of the rules of war, as in the phrase, "this general violated all known rules of war." Other writers ridicule the ideas of such rules. They say that Napoleon defeated his adversaries because their ideas were cast in the old formal mould, which he broke through at will. Was it not rather that he the better appreciated the changed conditions, and acted more in accordance with true principles? Such writers notwithstanding, there are certain axioms, rules, principles, or maxims of war that cannot be violated with impunity. They are the result of common sense and experience. Such are: Be prepared, strike quickly before the enemy is able to make out your plan, surprise him if possible, avoid as a rule doing what he expects, select ground that permits of operating by interior lines (the distances are shorter), do not make a frontal attack when the flank may be turned, protect your own flanks, do not have your line of retreat leading from a flank (an attack on that flank may cut you off), protect your communications, threaten the enemy's, do not divide your forces except in unusual circumstances, and, above all, the grand principle of war, be superior to the enemy in one way or another at the actual point of contact. Call these what you will, rules of war, axioms, or principles. They are really plain common sense, and the admiral or general who has the most of them stored away in his head, whether obtained by study or by actual experience, and recognizes the occasion for their use, is the man who wins.

Illustrations and comparisons are often misleading, yet war may be likened to the workings of a complex machine. The elements of tactics and strategy are the mould in which its parts are cast; the personal qualities of the combatants are the temper and durability of the various substances entering into its composition; discipline and training are the lubrication and adjustment of the working parts; the general or the admiral is the operator; and the maxims of war, added to his own common sense, are the rules that govern him in deciding when and how, and where, to demand of the machine its predetermined output.

A comprehensive view of war as affecting any country will take into account every circumstance that can be shown to have a bearing. Tactics, strategy and personal qualities, in their broad aspects, all enter. It is not a naval question, nor a military question. The whole armed force of the nation, ashore and afloat, will be in demand. The grand strategy of the war reckons with everything. Incidentally, in our own country, some of the machinery is lacking for this comprehensive planning of wars. It has so long been the custom to regard the army and the navy as occupying entirely different spheres, that it is actually difficult to consider them as merely parts of one harmonious whole. They are really as essential to each other, and as much dependent on the fundamental principles of war, as are, for instance, infantry, cavalry, and artillery in the army, or battle-ships, cruisers, and torpedo-boats in the navy. There is only one science of war, and this science includes a critical knowledge of the principles of action of all the branches of the national defence. Such knowledge is indispensable to the authority that controls the conduct of the war, that is, the President, as Commander-in-Chief, advised by his Cabinet officers. The President may, and will, seek also the advice of the senior officers of the army and navy; but this advice must, in the nature of things, often be one-sided and sometimes contradictory. However good a man may be President, and however able are his advisers, they are handicapped in time of national danger by the absence of a constituted body organized to perform these duties only, by the lack of a continuous study of war plans, and by a lack of files of such plans previously perfected. It will not do to call on the army and navy for their separate plans, which will lack comprehensiveness and unity. A supreme war council, superior to both army and navy, permanently organized, and advisory to the President, would seem to meet this want. It would be a National General Staff, drawing on the materials collected by the general staffs of the army and navy.*

In conclusion, there does not seem to be any adequate reason why a thoughtful citizen should not, at the expense of a moderate amount of time and labor, directed somewhat as here outlined, add much to his knowledge of the grand principles that control wars, be the better able to appreciate the wars of history, and, of more importance still, have an accurate insight into matters affecting the military and naval policy of his country. For, if the underlying principles of war are non-technical, they are to be apprehended by the educated civilian; who will thenceforth think for himself on military and naval subjects, nor continue, as in the past, to regard all such matters as a closed book.

ROY C. SMITH.

*** This article was prepared in April, 1903, before the creation of the Joint Board on National Defence, and before it was known to the writer that the Board was contemplated.**